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10/532,032	04/21/2005	Pierre Couture	06670/0202824-US0	6766
7278	7590	05/26/2006	EXAMINER	
DARBY & DARBY P.C. P. O. BOX 5257 NEW YORK, NY 10150-5257			AMRANY, ADI	
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			2836	

DATE MAILED: 05/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/532,032

Applicant(s)

COUTURE, PIERRE

Examiner

Adi Amrany

Art Unit

2836

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 April 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4/21/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "42" in figure 3 has been used to designate both a controller and a supply. The controllers should be labeled "40." Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. The title is objected to because it is not consistent with other titles within the file. The title on the specification uses "segment," while other documents, including PTO-1390, bibliographic data sheet, and the application data sheet, use "section." Please inform the examiner which term the applicant would prefer to use.

3. The disclosure is objected to because of the following informalities:

- a. The use of the phrase "enables to" is confusing and unclear. There are multiple instances throughout the specification where "enables to" is followed by

a verb; for example, page 8, lines 5-6, "enables to carry out a control." This phrase is improper, as a noun should follow "enables" to inform the reader of what or who is performing the carry out function. This phrase recurs several times throughout the application. For example, page 8, line 10, enables to extract, page 8, line 42, enables to lower, page 9, lines 7-8, enables to continue, and page 11, line 10, enable to de-ice, etc.

b. Page 8, line 6, "stabilization" is misspelled.

c. Page 9, lines 2-4, the declaration of cost reduction is unclear. How does including the converter within the segment reduce the cost of the converter? And how does including the converter within the segment allow serial production of the converters?

d. Page 11, lines 7-10, the phrase "could be omitted for simply keeping the switch connected" is unclear and confusing. Please consider the following revision: "the power unit can be removed from the current flow path by closing the switch. The closed switch creates a short across the power exchange unit, and the conductor operates as though the power exchange unit is not present."

e. Page 12, lines 1-3, the phrase "could be carried out" is unclear. How are control components carried out? Further, the reference to WO 02/41459 is improper. The incorporation of essential matter by reference is only allowed for US patents and US pre-grant publications. See MPEP 608.01(p) and 37 CFR 1.57(c).

Art Unit: 2836

f. Page 12, lines 25, the phrase "communication between the converters may be done by air" is confusing and unclear.

g. Page 12, line 28 to page 13, line 1, the sentence is unclear. First, the phrase "to transfer it in" is unclear. It appears applicant intended to state, "to transfer it to." Also, the phrase "carried out by the capacitive storage unit" is unclear. As written, it can be interpreted that the capacitor is performing an active function, when the capacitor is a passive device. It appears applicant intended to state that power of the subharmonic is transferred "to the electric component, which, in the current embodiment, is a capacitive storage unit."

h. Page 13, line 8, the phrase "to do a power transfer" is unclear.

Appropriate correction is required.

### ***Claim Objections***

4. Claims 3-5 are objected to because in each claim, "switch" should be in plural form.

5. Claims 3-7, 9-10, and 12-20 are objected to because they recite the limitation of "power units". The specification discloses that the devices are called "power exchange units." For consistency, it is requested that applicant keep the same device name each time it is used.

6. Claims 13-21 are objected to because claim 13 recites the limitation "the switch" in claim 12. There is insufficient antecedent basis for this limitation in the claim.

Claims 14-21 are objected to because they depend on claim 13.

Art Unit: 2836

7. Claims 12-21 are objected to as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Step (a) of claim 12 does not set forth a step for completing the method for modifying a power flow defined in the preamble. Step (a) recites, "providing a power [exchange] unit," but there is no disclosure in the claim defining what is provided to the power exchange unit or what method step the power exchange unit completes. Step (a) appears to recite only the elements that comprise a power exchange unit.

Claims 13-21 are objected to because they depend on claim 12.

8. Claims 12-21 are objected to as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are missing in claim 12, steps (a) and (b). Step (a) does not set forth any method steps, as discussed above. Step (b) recites that power is converted for modifying power flow, but the claim does not disclose the steps necessary to complete the method.

Claims 13-21 are objected to because they depend on claim 12.

### ***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action::

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2836

10. Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Björklund (US 6,411,067) in view of Genrikh (US 4,135,221).

With respect to claim 1, Björklund discloses an apparatus for modifying a power in a segment of an electric power line (figure 1), each segment including a phase line each having n conductors electrically insulated from one another, the apparatus comprising a power exchange unit (figure 1, item 2; column 3, lines 39-41) including:

a power converter (figure 1, items 3, 5; column 3, lines 41-47) for converting power between first and second pairs of terminals, the first pair of terminals being connected in series with at least one conductor of the segment, and

an electric component (figure 1, item 7; column 3, lines 46-47) connected to the second pair of terminals and capable of circulating power through the power converter for modifying said power flow.

Björklund states that placing two converters in a back-to-back station is known in the art (column 4, lines 15-34). The use of two converters in a back-to-back design anticipates the use of one converter.

Björklund does not expressly disclose the conductors are short-circuited at ends of the segment.

Genrikh discloses a high-voltage network comprising a three-phase transmission line where the conductors are shorted (figures 8, 11; column 10, lines 12-16, 44-49).

Björklund and Genrikh are analogous because they are from the same field of endeavor, namely high-voltage transmission line de-icing systems.

At the time of the invention by applicant, it would have been obvious to combine the apparatus for modifying power flow disclosed in Björklund with the short-circuited conductors disclosed in Genrikh.

The motivation for doing so would have been to heat and de-ice the power line (Genrikh, column 2, lines 34-40).

With respect to claim 2, Björklund and Genrikh disclose the apparatus according to claim 1. Björklund further discloses the power exchange unit further comprises a switch (figure 1, item 8, and column 3, lines 47-52) for selectively connecting and disconnecting the first pair of terminals in series with said at least one conductor of the segment, in response to control signals (figure 1, item 60).

With respect to claim 3, Björklund and Genrikh disclose the apparatus according to claim 2. Björklund does not expressly disclose  $n-1$  power *exchange* units (figure 1, items 3 and 5) connectable by means of their switches respectively to  $n-1$  conductors of a phase line belonging to the segment.

Björklund disclosing using one power exchange unit per phase line. Genrikh discloses shorting two of three phase lines together (figure 8).

It would have been obvious at the time of the invention by applicant that the two shorted power lines would require only one power exchange unit. Thus, the three ( $n$ ) power lines comprise two ( $n-1$ ) power exchange units.

With respect to claim 4, Björklund and Genrikh disclose the apparatus according to claim 2. Björklund further discloses at least one additional power *exchange* unit for forming a set of  $n$  power exchange units (figures 1, 2, item 2), the  $n$  power exchange



Art Unit: 2836

units being connectable by means of their switches (figure 2, item 8) respectively to  $n$  conductors of a phase line belonging to the segment. Figure 2 of Björklund shows power control devices 2 connected to each power transmission line at 4a-c and 6a-c

With respect to claim 5, Björklund and Genrikh disclose the apparatus according to claim 2, and Björklund further discloses an additional power *exchange* unit for forming a set of two power *exchange* units (figure 1, items 3 and 5, and column 4, lines 15-34), the two power exchange units being connectable by means of their switches (figure 1, item 8) respectively to conductors of two phase lines belonging respectively to said segment and to another segment, the two power units sharing a common electric component (figure 1, item 7) for allowing a power flow between the two segments.

With respect to claim 6, Björklund and Genrikh disclose the apparatus according to claim 5. Genrikh further discloses the switch (figure 1, items 4, 5) of each power *exchange* unit is able to connect and disconnect, for the corresponding phase line,  $n-1$  conductors that are short-circuited among each other on each side of the switch (figures 1, 8).

With respect to claim 7, Björklund and Genrikh disclose the apparatus according to claim 5. Genrikh further discloses the switch (figure 1, items 4, 5) of each power *exchange* unit is able to connect and disconnect, for the corresponding phase line, more than one and at most  $n-1$  conductors that are short-circuited among each other on each side of the switch (figures 1, 8).

With respect to claim 8, Björklund and Genrikh disclose the apparatus according to claim 2. Genrikh further discloses the switch (figure 1, items 4, 5) is able to connect

Art Unit: 2836

and disconnect more than one and at most  $n-1$  conductors of a phase line belonging to the segment (figures 1, 8), said more than one and at most  $n-1$  conductors being short-circuited among each other on each side of the switch.

With respect to claim 9, Björklund and Genrikh disclose the apparatus according to claim 2. Björklund further discloses at least one additional power *exchange* unit (figure 2) for forming a first set of  $n-1$  power *exchange* units, the switches (figure 2, item 8) of the  $n-1$  power *exchange* units being able to connect and disconnect respectively  $n-1$  conductors of a phase line belonging to the segment. Genrikh discloses said  $n-1$  conductors being short-circuited among each other on a side of the switches (figure 8).

With respect to claim 10, Björklund and Genrikh disclose the apparatus according to claim 9. Björklund further discloses at least one additional power *exchange* unit (figure 1, items 3, 5; figure 2) for forming a second set of  $n-1$  power *exchange* units, and the first and second sets of power *exchange* units sharing coming electric components (figures 1, 2, item 7) for allowing a power flow between the two segments. Genrikh discloses the switches of the  $n-1$  power *exchange* units of the second set being able to connect and disconnect respectively  $n-1$  conductors of a second phase line belonging to another segment (figure 8), said  $n-1$  conductors of the second phase line being short-circuited among each other on a side of the corresponding switches.

With respect to claim 11, Björklund and Genrikh disclose the apparatus according to claim 1, and Björklund further discloses the electric component is selected among the following components: a capacitor (figures 1 and 2, item 7, and column 5,

Art Unit: 2836

lines 15-24), a battery, an inductance, a resistance, and a resistance connected in parallel to a capacitor.

With respect to claim 12, Björklund and Genrikh disclose the apparatus necessary to complete the recited method, as discussed above in the rejection of claim 1.

With respect to claim 13, Björklund and Genrikh disclose the apparatus necessary to complete the recited method, as discussed above in the rejection of claim 2.

With respect to claim 14, Björklund and Genrikh disclose the apparatus necessary to complete the recited method, as discussed above in the rejection of claim 3.

With respect to claim 15, Björklund and Genrikh disclose the apparatus necessary to complete the recited method, as discussed above in the rejection of claim 4.

With respect to claim 16, Björklund and Genrikh disclose the apparatus necessary to complete the recited method, as discussed above in the rejection of claim 5.

With respect to claim 17, Björklund and Genrikh disclose the apparatus necessary to complete the recited method, as discussed above in the rejection of claim 6.

With respect to claim 18, Björklund and Genrikh disclose the apparatus necessary to complete the recited method, as discussed above in the rejection of claim 7.

With respect to claim 19, Björklund and Genrikh disclose the apparatus necessary to complete the recited method, as discussed above in the rejection of claim 8.

With respect to claim 20, Björklund and Genrikh disclose the apparatus necessary to complete the recited method, as discussed above in the rejection of claim 9.

With respect to claim 21, Björklund and Genrikh disclose the apparatus necessary to complete the recited method, as discussed above in the rejection of claim 10.

### ***Conclusion***


11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Faria (US 6,295,215) discloses an AC power supply apparatus using AC/DC and DC/AC converters to control and maintain an AC power output level, that further includes a system bypass switch.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adi Amrany whose telephone number is (571) 272-0415. The examiner can normally be reached on weekdays, from 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571) 272-2800 x36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AA

  
BURTON S. MULLINS  
PRIMARY EXAMINER